

Fiber Optic Cable Outer Sheath Manufacturing



Overview

Explore 9 top manufacturers and suppliers of Fiber Optic Sheathing in our comprehensive photonics buyers' guide.

Key Takeaways

The outer sheath of a fiber optic cable is produced through an extrusion process using high-quality plastic materials, providing mechanical protection, environmental insulation, and durability. Overview of the Outer SheathThe outer sheath, also called the jacket, is the final protective layer of a fiber optic cable. It shields the delicate fiber core and buffer layers from mechanical stress, moisture, chemicals, and environmental hazards.

The sheath also contributes to the cable's flexibility, tensile strength, and fire resistance, depending on the material used.

Material Selection

Common materials for the outer sheath include polyethylene (PE), polyvinyl chloride (PVC), low-smoke zero-halogen (LSZH) compounds, and polyurethane. The choice depends on the application: outdoor cables often use UV-resistant PE, while indoor cables may use flame-retardant LSZH. Additives can be included to enhance properties such as abrasion resistance, flexibility, and temperature tolerance.

Extrusion Process

Preparation of Materials: The selected polymer is dried and mixed with additives to ensure uniformity. **Extrusion:** The polymer is fed into an extruder, where it is heated to a molten state and forced through a die that shapes it around the fiber bundle or loose tubes. Modern extrusion lines allow precise control of thickness and diameter.

Cooling and Solidification: After extrusion, the cable passes through a cooling trough or water bath to solidify the sheath while maintaining its shape and adhesion to underlying layers. **Optional Armoring:** For additional mechanical protection, steel or Kevlar® strength members may be incorporated before or during the extrusion process.

Quality Control

During and after extrusion, the outer sheath undergoes rigorous quality checks: **Dimensional Accuracy:** Ensuring consistent diameter and wall thickness. **Mechanical Testing:** Tensile strength, elongation, and impact resistance are measured. **Environmental Resistance:** UV, moisture, and chemical resistance tests are performed.

Visual Inspection: Detecting surface defects, bubbles, or irregularities.

Additional Considerations

Coloring: The sheath can be colored for identification purposes, either by adding pigments to the polymer or applying a surface coating after extrusion. **Fire and Smoke Standards:** For indoor installations, LSZH or flame-retardant materials are used to meet safety regulations. **Sustainability:** Modern extrusion lines optimize energy use and reduce material waste, contributing to lower carbon footprint in cable production.

Conclusion

The outer sheath manufacturing process is a critical step in fiber optic cable production. By combining high-quality polymers, precise extrusion technology, and stringent quality control, manufacturers ensure that the cable can withstand environmental and mechanical stresses while maintaining long-term performance and reliability.

Article Content

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Get to know the optimum process conditions and working practices needed to improve cable quality and to increase production capacity.

Multi-Core Soft Optical Fiber Cable Sheathing Extrusion Line

A multi-core soft optical fiber cable sheathing extrusion production line is a specialized set of equipment used for manufacturing the outer sheath of multi-core soft optical fiber cables.

fiber optic cable production lines and equipment

With it, you can manufacture fiber optic cables for a wide range of indoor and outdoor applications with a flexible layout. Our stranding technology supports

6 Fiber Cable Outer Sheath Materials and How To Choose?

Indoor fiber optic cables can be sheathed with PVC, and outdoor fiber optic cables can be sheathed with PE. When flame-retardant is required, LSZH, flame-retardant materials can be used.

Optical Cable Sheath Extrusion Line

An optical cable sheath extrusion production line is a specialized set of automated industrial equipment used for extruding one or multiple polymer outer sheaths onto the optical cable core (the central

Optical Fiber Cable Manufacturing Machinery

The Optical Fiber Cable Manufacturing Machinery is designed specifically for the outer sheathing line of fiber optic cables. This state-of-the-art equipment ensures high-quality production with a focus on

Essential Guide to the Construction of Optical Fiber Cables

Optical fibers are constructed using a precise process involving a core, cladding, coating, strengthening fibers, and an outer jacket. This guide will explain the construction of optical fiber,

Fiber optic cable outer sheath material

Optical fiber cables are generally composed of optical fiber cores, cladding, coatings, reinforcing elements, and outer sheaths. The outer sheaths are used as the protective layer of the

Five Reputable Optical Fiber Cable Manufacturers in China 2026 ...

These five manufacturers collectively represent a significant portion of China's optical fiber cable output, which underpins domestic telecom expansion and global AI data infrastructure.

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24 Core Outdoor Armored Double Jacket Fiber Optic Cable

Fiber optic cable GYTY53, 2~144 fibers, central strength member (steel), jelly filled, fiber contained loose tube and PP filler (if necessary) stranded, water blocking tape, PE inner sheath, longitudinally

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The FOA Reference For Fiber Optics

All fiber optic applications are not the same. At the FOA, we're mainly concerned with communications fiber optics - telco, CATV, LAN, industrial, etc., but fiber optics are also used in medical or

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Recommendation ITU-T L.100 (01/2024)

The cable should be sufficiently robust to resist twisting, and its design should accommodate a reasonable number of cable twists per unit length without an increase in optical loss and/or damage

GYTS Outdoor Cable

GYTS is the outdoor fiber optic cable type used for duct and aerial applications.
Factory-direct from DYS Fiber Optic — full specs and quote on request.

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